

SEQUENCE LISTING

<110> Akzo Nobel NV

<120> Structural Proteins of Fish Pancreatic Disease Virus
and Uses Thereof

<130> I/98376US

<140> PCT/EP 99/03244

<141> 1999-05-06

<150> EP98201461.5

<151> 1998-05-08

<160> 15

<170> PatentIn Ver. 2.1

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<211> 5179

<212> DNA

<213> Salmon pancreatic disease virus

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<213> Salmon pancreatic disease virus

<220>
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Lys Ala Asn Val Met His Ser Arg Val Glu Ala Val Cys Pro Asp Leu
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Ser Glu Val Ala Met Asp Arg Phe Thr Leu Asp Met Lys Arg Asp Val
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Lys Val Thr Pro Gly Thr Lys His Val Glu Glu Arg Pro Lys Val Gln
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Glu Ile Gln Ala Ala Asp Pro Met Ala Thr Ala Tyr Leu Cys Ala Ile
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His Val Leu Phe Asp Met Ser Ser Glu Asp Phe Asp Ala Ile Val Gly
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His Gly Met Lys Leu Gly Asp Lys Val Leu Glu Thr Asp Ile Ser Ser
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Phe Asp Lys Ser Gln Asp Gln Ala Met Ala Val Thr Ala Leu Met Leu
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Leu Arg Asp Leu Gly Val Glu Glu Asp Leu Leu Thr Leu Ile Glu Ala
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Leu Asn Met Glu Val Lys Ile Met Asp Met Glu Ile Gly Asn Met Ser
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Pro Tyr Phe Cys Gly Gly Phe Leu Leu Leu Asp Thr Val Thr Gly Thr
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Val Ser Arg Val Ser Asp Pro Val Lys Arg Leu Met Lys Met Gly Lys
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Pro Ala Leu Asn Asp Pro Glu Thr Asp Val Asp Arg Cys Arg Ala Leu
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Arg Glu Glu Val Glu Ser Trp Tyr Arg Val Gly Ile Gln Trp Pro Leu
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Gln Val Ala Ala Ala Thr Arg Tyr Gly Val Asn His Leu Pro Leu Ala
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<213> Salmon pancreatic disease virus

<220>

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Ile Val Pro Gly Arg Ala Arg Gly Val Arg Ile Pro Leu Arg Leu Thr
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Leu Ile Phe Ser Ala Ser Tyr Phe Gln Thr Ile Met Phe Pro Met Gln
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Phe Thr Asn Ser Ala Tyr Arg Gln Met Glu Pro Met Phe Ala Pro Gly
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Ser Arg Gly Gln Val Gln Pro Tyr Arg Pro Arg Thr Lys Arg Arg Gln

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 <213> Salmon pancreatic disease virus

<220>
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Val Ala Glu Asp Met Asp Leu Glu Ala Ala Ala Tyr Pro Lys Ser Met		
180	185	190
Arg Asp Gln Ala Ala Glu Pro Ala Thr Met Met Asp Arg Val Tyr Asn		
195	200	205

Trp Glu Tyr Gly Thr Ile Arg Val Glu Asp Asn Val Ile Ile Asp Ala
210 215 220

Ser Gly Arg Gly Lys Pro Gly Asp Ser Gly Arg Ala Ile Thr Asp Asn
225 230 235 240

Ser Gly Lys Val Val Gly Ile Val Leu Gly Gly Gly Pro Asp Gly Arg
245 250 255

Arg Thr Arg Leu Ser Val Ile Gly Phe Asp Lys Lys Met Lys Ala Arg
260 265 270

Glu Ile Ala Tyr Ser Asp Ala Ile Pro Trp
275 280

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<211> 71

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<213> Salmon pancreatic disease virus

<220>

<223> E3

<400> 5

Thr Arg Ala Pro Ala Leu Leu Leu Leu Pro Met Val Ile Val Cys Thr
1 5 10 15

Tyr Asn Ser Asn Thr Phe Asp Cys Ser Lys Pro Ser Cys Gln Asp Cys
20 25 30

Cys Ile Thr Ala Glu Pro Glu Lys Ala Met Thr Met Leu Lys Asp Asn
35 40 45

Leu Asn Asp Pro Asn Tyr Trp Asp Leu Leu Ile Ala Val Thr Thr Cys
50 55 60

Gly Ser Ala Arg Arg Lys Arg
65 70

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<211> 438

<212> PRT

<213> Salmon pancreatic disease virus

<220>

<223> E2

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Ala Val Ser Thr Ser Pro Ala Ala Phe Tyr Asp Thr Gln Ile Leu Ala
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Ala His Ala Ala Ala Ser Pro Tyr Arg Ala Tyr Cys Pro Asp Cys Asp

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Gly	Thr	Ala	Cys	Ile	Ser	Pro	Ile	Ala	Ile	Asp	Glu	Val	Val	Ser	Ser	
.		35					40					45				
Gly	Ser	Asp	His	Val	Leu	Arg	Met	Arg	Val	Gly	Ser	Gln	Ser	Gly	Val	
	50					55					60					
Thr	Ala	Lys	Gly	Gly	Ala	Ala	Gly	Glu	Thr	Ser	Leu	Arg	Tyr	Leu	Gly	
65					70					75					80	
Arg	Asp	Gly	Lys	Val	His	Ala	Ala	Asp	Asn	Thr	Arg	Leu	Val	Val	Arg	
				85					90					95		
Thr	Thr	Ala	Lys	Cys	Asp	Val	Leu	Gln	Ala	Thr	Gly	His	Tyr	Ile	Leu	
			100					105					110			
Ala	Asn	Cys	Pro	Val	Gly	Gln	Ser	Leu	Thr	Val	Ala	Ala	Thr	Leu	Asp	
		115					120					125				
Gly	Thr	Arg	His	Gln	Cys	Thr	Thr	Val	Phe	Glu	His	Gln	Val	Thr	Glu	
	130					135					140					
Lys	Phe	Thr	Arg	Glu	Arg	Ser	Lys	Gly	His	His	Leu	Ser	Asp	Met	Thr	
145					150					155					160	
Lys	Lys	Cys	Thr	Arg	Phe	Ser	Thr	Thr	Pro	Lys	Lys	Ser	Ala	Leu	Tyr	
				165					170					175		
Leu	Val	Asp	Val	Tyr	Asp	Ala	Leu	Pro	Ile	Ser	Val	Glu	Ile	Ser	Thr	
			180					185					190			
Val	Val	Thr	Cys	Ser	Asp	Ser	Gln	Cys	Thr	Val	Arg	Val	Pro	Pro	Gly	
		195					200					205				
Thr	Thr	Val	Lys	Phe	Asp	Lys	Lys	Cys	Lys	Ser	Ala	Asp	Ser	Ala	Thr	
	210					215					220					
Val	Thr	Phe	Thr	Ser	Asp	Ser	Gln	Thr	Phe	Thr	Cys	Glu	Glu	Pro	Val	
225					230					235					240	
Leu	Thr	Ala	Ala	Ser	Ile	Thr	Gln	Gly	Lys	Pro	His	Leu	Arg	Ser	Ala	
				245					250					255		
Met	Leu	Pro	Ser	Gly	Gly	Lys	Glu	Val	Lys	Ala	Arg	Ile	Pro	Phe	Pro	
			260					265					270			
Phe	Pro	Pro	Glu	Thr	Ala	Thr	Cys	Arg	Val	Ser	Val	Ala	Pro	Leu	Pro	
		275					280					285				
Ser	Ile	Thr	Tyr	Glu	Glu	Ser	Asp	Val	Leu	Leu	Ala	Gly	Thr	Ala	Lys	
	290					295					300					
Tyr	Pro	Val	Leu	Leu	Thr	Thr	Arg	Asn	Leu	Gly	Phe	His	Ser	Asn	Ala	
305					310					315					320	
Thr	Ser	Glu	Trp	Ile	Gln	Gly	Lys	Tyr	Leu	Arg	Arg	Ile	Pro	Val	Thr	

	325		330		335										
Pro	Gln	Gly	Ile	Glu	Leu	Thr	Trp	Gly	Asn	Asn	Ala	Pro	Met	His	Phe
			340					345					350		
Trp	Ser	Ser	Val	Arg	Tyr	Ala	Ser	Gly	Asp	Ala	Asp	Ala	Tyr	Pro	Trp
		355					360					365			
Glu	Leu	Leu	Val	Tyr	His	Thr	Lys	His	His	Pro	Glu	Tyr	Ala	Trp	Ala
	370					375					380				
Phe	Val	Gly	Val	Ala	Cys	Gly	Leu	Leu	Ala	Ile	Ala	Ala	Cys	Met	Phe
385					390					395					400
Ala	Cys	Ala	Cys	Ser	Arg	Val	Arg	Tyr	Ser	Leu	Val	Ala	Asn	Thr	Phe
				405					410					415	
Asn	Ser	Asn	Pro	Pro	Pro	Leu	Thr	Ala	Leu	Thr	Ala	Ala	Leu	Cys	Cys
			420					425					430		
Ile	Pro	Gly	Ala	Arg	Ala										
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 <212> PRT
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<220>
 <223> 6K

<400> 7															
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Trp	Ser	Ala	Leu	Leu	Val	Ile	Leu	Ala	Tyr	Val	Gln	Ser	Cys	Lys	Ser
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<210> 8
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<220>
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1				5					10					15	

Glu	Ala	Val	Ile	Asn	Arg	Asn	Gly	Tyr	Asp	Pro	Leu	Lys	Leu	Thr	Ile		
			20					25					30				
Ser	Val	Asn	Phe	Thr	Val	Ile	Ser	Pro	Thr	Thr	Ala	Leu	Glu	Tyr	Trp		
		35					40					45					
Thr	Cys	Ala	Gly	Val	Pro	Ile	Val	Glu	Pro	Pro	His	Val	Gly	Cys	Cys		
	50					55					60						
Thr	Ser	Val	Ser	Cys	Pro	Ser	Asp	Leu	Ser	Thr	Leu	His	Ala	Phe	Thr		
	65				70					75					80		
Gly	Lys	Ala	Val	Ser	Asp	Val	His	Cys	Asp	Val	His	Thr	Asn	Val	Tyr		
				85					90					95			
Pro	Leu	Leu	Trp	Gly	Ala	Ala	His	Cys	Phe	Cys	Ser	Thr	Glu	Asn	Thr		
			100					105					110				
Gln	Val	Ser	Ala	Val	Ala	Ala	Thr	Val	Ser	Glu	Phe	Cys	Ala	Gln	Asp		
		115					120					125					
Ser	Glu	Arg	Ala	Glu	Ala	Phe	Ser	Val	His	Ser	Ser	Ser	Val	Thr	Ala		
	130					135					140						
Glu	Val	Leu	Val	Thr	Leu	Gly	Glu	Val	Val	Thr	Ala	Val	His	Val	Tyr		
	145				150					155					160		
Val	Asp	Gly	Val	Thr	Ser	Ala	Arg	Gly	Thr	Asp	Leu	Lys	Ile	Val	Ala		
				165					170					175			
Gly	Pro	Ile	Thr	Thr	Asp	Tyr	Ser	Pro	Phe	Asp	Arg	Lys	Val	Val	Arg		
			180					185					190				
Ile	Gly	Glu	Glu	Val	Tyr	Asn	Tyr	Asp	Trp	Pro	Pro	Tyr	Gly	Ala	Gly		
	195						200					205					
Arg	Pro	Gly	Thr	Phe	Gly	Asp	Ile	Gln	Ala	Arg	Ser	Thr	Asn	Tyr	Val		
	210					215					220						
Lys	Pro	Asn	Asp	Leu	Tyr	Gly	Asp	Ile	Gly	Ile	Glu	Val	Leu	Gln	Pro		
	225				230				235					240			
Thr	Asn	Asp	His	Val	His	Val	Ala	Tyr	Thr	Tyr	Thr	Thr	Ser	Gly	Leu		
			245						250					255			
Leu	Arg	Trp	Leu	Gln	Asp	Ala	Pro	Lys	Pro	Leu	Ser	Val	Thr	Ala	Pro		
			260					265					270				
His	Gly	Cys	Lys	Ile	Ser	Ala	Asn	Pro	Leu	Leu	Ala	Leu	Asp	Cys	Gly		
		275					280					285					
Val	Gly	Ala	Val	Pro	Met	Ser	Ile	Asn	Ile	Pro	Asp	Ala	Lys	Phe	Thr		
	290						295				300						
Arg	Lys	Leu	Lys	Asp	Pro	Lys	Pro	Ser	Ala	Leu	Lys	Cys	Val	Val	Asp		
	305				310					315					320		

Ser Cys Glu Tyr Gly Val Asp Tyr Gly Gly Ala Ala Thr Ile Thr Tyr
 325 330 335
 Glu Gly His Glu Ala Gly Lys Cys Gly Ile His Ser Leu Thr Pro Gly
 340 345 350
 Val Pro Leu Arg Thr Ser Val Val Glu Val Val Ala Gly Ala Asn Thr
 355 360 365
 Val Lys Thr Thr Phe Ser Ser Pro Thr Pro Glu Val Ala Leu Glu Val
 370 375 380
 Glu Ile Cys Ser Ala Ile Val Lys Cys Ala Gly Glu Cys Thr Pro Pro
 385 390 395 400
 Lys Glu His Val Val Ala Thr Arg Pro Arg His Gly Ser Asp Pro Gly
 405 410 415
 Gly Tyr Ile Ser Gly Pro Ala Met Arg Trp Ala Gly Gly Ile Val Gly
 420 425 430
 Thr Leu Val Val Leu Phe Leu Ile Leu Ala Val Ile Tyr Cys Val Val
 435 440 445
 Lys Lys Cys Arg Ser Lys Arg Ile Arg Ile Val Lys Ser
 450 455 460

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<210> 10
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 <212> DNA
 <213> Artificial Sequence

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<400> 10
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<210> 11
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 <212> DNA
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<220>
<223> Description of Artificial Sequence: primer

<400> 11
tgcatgcggc cgcatgacac gcgctccggc cctcctg 37

<210> 12
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

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tgcatgcggc cgctcacgcg cgagcccctg gtatgcaaca 40

<210> 13
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<220>
<223> Description of Artificial Sequence: primer

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<220>
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Asp Gln Pro Tyr Leu Asp Ile Ile Ala Tyr Leu Trp Thr Asn Ser Lys
1 5 10 15

gtg gcc ttc ggg cta caa ttt gcg gcg ccc gtg gcc tgt gtg ctc atc 96
Val Ala Phe Gly Leu Gln Phe Ala Ala Pro Val Ala Cys Val Leu Ile
20 25 30

att aca tac gcc ctt agg cac tgc aga ttg tgc tgc aag tct ttt tta 144
Ile Thr Tyr Ala Leu Arg His Cys Arg Leu Cys Cys Lys Ser Phe Leu
35 40 45

ggg gta aga ggg tgg tca gcc ctg ctg gtc atc ctt gcg tat gta cag 192
Gly Val Arg Gly Trp Ser Ala Leu Leu Val Ile Leu Ala Tyr Val Gln

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50

55

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agc tgc aag agc
Ser Cys Lys Ser
65

204

<210> 15

<211> 68

<212> PRT

<213> Salmon pancreatic disease virus

<400> 15

Asp Gln Pro Tyr Leu Asp Ile Ile Ala Tyr Leu Trp Thr Asn Ser Lys
1 5 10 15

Val Ala Phe Gly Leu Gln Phe Ala Ala Pro Val Ala Cys Val Leu Ile
20 25 30

Ile Thr Tyr Ala Leu Arg His Cys Arg Leu Cys Cys Lys Ser Phe Leu
35 40 45

Gly Val Arg Gly Trp Ser Ala Leu Leu Val Ile Leu Ala Tyr Val Gln
50 55 60

Ser Cys Lys Ser
65